

ABSTRACT

Methods are disclosed for enhancing protein production. One method comprises preparing a vector by inserting a gene encoding ubiquitin in front of a gene encoding a protein of interest and inserting the vector into a cell. A fusion protein will be expressed which includes ubiquitin plus the protein of interest. Ubiquitin C-terminal hydrolases can cleave the fusion protein leaving the desired protein in its free state. This method causes enhanced production of the protein of interest as compared to performing the same method without the ubiquitin gene as part of the vector. A ubiquitin promoter is unnecessary to yield this enhanced production and is not used. A second method is very similar except that in place of a ubiquitin gene, a gene encoding fourteen amino acids of cucumber mosaic virus coat protein is inserted in front of the gene of interest. This results in expression of a fusion protein comprising the fourteen amino acid residues of the coat protein bonded to the protein of interest. The fusion protein is produced at a higher level than is the protein when the coat protein gene fragment is not present in the vector. In both methods the genes can be placed under the control of heterologous promoters such as a 35S promoter.